

1 TO WHOM IT MAY CONCERN:

2

3 BE IT KNOWN THAT WE, TODD A. WILLIAMS, a  
4 citizen of the United States of America, residing in  
5 Laguna Niguel, in the County of Orange, State of  
6 California, and PAUL B. SPECHT, a citizen of the United  
7 States of America, residing in Willmette, in the County  
8 of Cook, State of Illinois, have invented a new and  
9 useful improvement in

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12 **SCRUBBING DEVICE ATTACHABLE TO A MOP**

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1                   **BACKGROUND OF THE INVENTION**

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3                 This application claims priority from  
4         provisional application Serial No. 60/429,220 filed  
5         November 25, 2002.

6                 This invention relates generally to surface  
7         scrubbing and mopping, and more particularly to  
8         provision of an attachment easily connectable to a mop,  
9         to facilitate surface scrubbing.

10               There is need for improvements in surface  
11         scrubbing and mopping whereby the two operations are  
12         enabled by one hand manipulable apparatus, such as an  
13         elongated mop handle. In particular there is need for  
14         an attachment that carries surface scrubbing elements,  
15         and which can easily and rapidly be connected to a mop,  
16         and preferably to mops of different configurations at  
17         the locations of mop connections to handles.

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19                   **SUMMARY OF THE INVENTION**

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21               It is a major object of the invention to  
22         provide method and apparatus meeting the above need.  
23         Basically, the improved apparatus provides a mop with  
24         surface scrubbing capability and that includes an  
25         attachment for rigid connection to a mop, and which is

1 adapted to carry a surface scrubbing element or  
2 elements. As will be seen, the attachment is  
3 configured for clamping to the mop, at or near the mop  
4 head, as by force exerted by the mop handle.

5 It is another object to provide an attachment  
6 having a flange shaped tongue or plate to be clamped in  
7 position between the end of the mop handle and head.

8 One of the following is also typically provided:

- 9           i) the tongue defines a hole to pass  
10                 the handle end, or to pass a  
11                 projection to which the handle end  
12                 fits,
- 13           ii) the tongue has a clampable portion  
14                 to be clamped in position adjacent  
15                 the handle and head,
- 16           iii) the attachment has two holes of  
17                 different sizes associated with the  
18                 tongue to selectively register with  
19                 different sized mop handles.

20           As will be seen, a foldable adapter in the  
21 form of a flap may be provided, one of the holes to be  
22 carried by the tongue and the second hole carried by  
23 the flap, the holes being of different sizes, the  
24 second hole registering with the first hole when the  
25 flap is folded. Accordingly, the device can be

- 1 securely attached to mop handle ends of different sizes
- 2 that fit the holes of different sizes.

3 Yet another object is to provide apparatus as  
4 referred to which includes a section carrying scrubbing  
5 elements, that section having hinged operative  
6 connection to the tongue. That connection may also  
7 advantageously include a living hinge, molded in  
8 position during plastic molding of the attachment, to  
9 accommodate and facilitate flap folding. The scrubbing  
10 elements may be carried by a pad which has attachment  
11 to a plate portion of the section. Scrubbing bristles  
12 may be fused in position to the plate portion, or other  
13 carrier, as will be seen. The plate portion and pad  
14 connection may be one of the following:

15                           x<sub>1</sub>) a bond,  
16                           x<sub>2</sub>) an interfit connection,  
17                           x<sub>3</sub>) projections, and apertures  
18                           receiving the projections, the  
19                           projections located on one of the  
20                           plate and pad, and the apertures  
21                           located in the other of the plate  
22                           and pad.

23                  These and other objects and advantages of the  
24 invention, as well as the details of an illustrative  
25 embodiment, will be more fully understood from the  
26 following specification and drawings, in which:

1                   **DRAWING DESCRIPTION**

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3                 Fig. 1 is a perspective view of apparatus  
4     incorporating the invention;

5                 Fig. 2 is an inverted perspective view of the  
6     Fig. 1 apparatus;

7                 Fig. 3 is an end elevation of the Fig. 1  
8     apparatus;

9                 Fig. 4 is a view taken on lines 4-4 of Fig.  
10  3;

11                Fig. 5 is a view like Fig. 4 but showing  
12     connection of the apparatus to another type mop;

13                Fig. 6 is a view like Fig. 5, but showing  
14     connection of the apparatus to yet another type mop;

15                Fig. 7 is a section taken on lines 7-7 of  
16     Fig. 6;

17                Fig. 8 is an end view of the Fig. 1 type  
18     apparatus in tilted position for floor scrubbing.;

19                Fig. 9 is a front perspective view of another  
20     form of apparatus incorporating the invention, and  
21     which is preferred;

22                Fig. 10 is a rear perspective view of the  
23     Fig. 9 apparatus;

1               Fig. 11 is an end elevation of the Fig. 9 and  
2   10 apparatus, and also showing scrubbing pad attachment  
3   to a plate section of that apparatus;

4               Fig. 12 is a view like Fig. 11, showing  
5   another mode of scrubber attachment, the scrubber being  
6   bristles;

7               Fig. 13 is a bottom view of the plate section  
8   of the apparatus, to which the pad is attachable;

9               Fig. 14 is an end view showing mop connection  
10   to the Fig. 11 device;

11              Fig. 15 is a frontal view of the Fig. 15  
12   assembly;

13              Fig. 16 is a plan view taken on lines 16-16  
14   of Fig. 15;

15              Figs. 17 and 17a are schematic views showing  
16   registration of flap and tongue openings of different  
17   sizes to accommodate different mop handles;

18              Fig. 18 is a frontal view of elements as seen  
19   in Fig. 17; and

20              Fig. 19 is an end view of a modified mop  
21   handle connection to attachment apparatus of the  
22   general type seen in Figs. 1 and 9-11.

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24                   **DETAILED DESCRIPTION**

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1                   Fig. 1 is a perspective view showing  
2     apparatus 10 for providing a mop with surface scrubbing  
3     capability. It includes a surface scrubbing device 11  
4     having an attachment 20 for rigid connection to a mop.  
5     Device 11 includes a base 12 having a first section 12a  
6     with a surface 12a' facing in a first direction 13a,  
7     and a second section 12b with a surface 12b' facing in  
8     a second direction 13b, those surfaces 12a and 12b  
9     relatively angled at an obtuse angle  $\alpha$  as seen in Fig.  
10    3. Floor scrubbing elements, as for example bristle  
11    groups 14a and 14b are carried to project from surfaces  
12    12a' and 12b', as shown. Fig. 2 is another perspective  
13    view of the apparatus 10 with projecting bristle groups  
14    14a and 14b.

15                  Attachment 20 includes a plate or plate  
16    sections attached to the base 12. See plate section  
17    20a attached to base section 12a, and plate section 20b  
18    attached to base section 12b. Sections 20a and 12a may  
19    be of one-piece construction, and sections 20b and 12b  
20    may be of one-piece construction. A first fold 20c  
21    connects sections 20a and 20b. The attachment includes  
22    a tongue as at 20d projecting at an angle  $\beta$  from  
23    section 20b at a fold connection 20d to section 20b.  
24    Angle  $\beta$  may typically be about  $90^\circ$ . The tongue 20d  
25    typically has an angled extension 20d'. The plate and

1 tongue may be integral, and non-metallic. The tongue  
2 20d, by itself or with extension 20d' are adapted to be  
3 clamped between a mop handle and a mop head. See for  
4 example the handle 25 and the mop head 26 in the end  
5 view of the apparatus 10 in Fig. 3. The mop is shown  
6 to include mop strands 27 carried by the head which  
7 extend adjacent to the base 12. Head 26 is positioned  
8 or captivated in a corner zone 28 formed by one or both  
9 plate sections 20b and 20d.

10 The tongue has a through opening or hole 30  
11 through which the handle end, or the mop head is  
12 received, to establish the connection of the handle to  
13 the head. As shown in Fig. 3, the handle 25 has a  
14 tapered end portion 25a which carries threads 32, and  
15 sized to at least in part project through hole 30 and  
16 screw into an interiorly threaded recess 26a in the mop  
17 head 26. In this process, the elements are sized so  
18 that the tongue becomes clamped or locked in position  
19 adjacent or between the mop head and the handle. The  
20 tongue 20d, base sections 20a and 20b, handle 25, and  
21 mop head 26 are thereby easily assembled into an  
22 interlocked unit, for floor scrubbing and/or mopping.  
23 Scrubbing may be carried out as in Fig. 3 position,  
24 with bristle group 14a engaging the floor surface 35,  
25 or in Fig. 8 position, with bristles 14b engaging the  
26 floor surface. The bristle ends may be fused to the

1 base sections, or otherwise connected to those  
2 sections. See bristle supporting portions 14a' and  
3 14b'.

4 Fig. 4 shows the completed assembly of  
5 elements referred to above, in Figs. 1-3. Note the  
6 clamping at 40 of the attachment 20, between the mop  
7 head 26 and the handle end. The attachment can be  
8 quickly attached to the mop, as by unscrewing handle 25  
9 from mop head 26, inserting the handle end 25a through  
10 hole 30 in the tongue, and then tightening the handle  
11 end 25a into the head recess 26a.

12 Fig. 5 shows the attachment 20 connected to  
13 another type mop 42. The mop head 43 carries a  
14 projecting sleeve 44 that is inserted through hole 30  
15 in 20d. The sleeve is internally threaded at 45 to  
16 receive the threaded end 25a of the handle 25. Upon  
17 tightening, a clamping sleeve 46 is urged downwardly by  
18 the handle to telescopically fit about sleeve 44 and to  
19 clamp at 47 against tongue 20d, to rigidly hold the  
20 attachment 20 to the mop head 43.

21 In Figs. 6 and 7, the tongue 20d of the  
22 attachment 20 is clamped between a traveling bar 60 of  
23 the mop 61, and mop fixed structure 62. A thumb screw  
24 63 advances and retracts bar 60. The mop includes a  
25 frame 64 and a handle 65.

1           Water slots as seen at 70 in Fig. 1 may be  
2   used to drain water.

3           Fig. 8 shows the Fig. 1 apparatus 10 in  
4   tilted position for floor scrubbing by bristle group  
5   14b engagement with surface 35. Note handle 25  
6   extending substantially horizontally. Plate section  
7   20b also extends substantially horizontally. Mop  
8   strands 27 also engage the surface 35.

9           Figs. 9-16 show a modified attachment  
10   apparatus 100 for providing a mop with surface  
11   scrubbing capability. Apparatus 100 facilitates  
12   connection of a mop 101 to a mop handle 125; and a  
13   surface scrubbing device 110 is attached to, or  
14   attachable to, the apparatus 100. See Fig. 14.

15           As seen in Fig. 11, device 110 includes a  
16   base 112 in the form of a plate, having a first section  
17   112a with a surface 112a' facing in direction 113a; and  
18   a second section 112b with a surface 112b' facing in a  
19   second direction 113b. Surfaces 112a' and 112b' are  
20   relatively angled at an obtuse angle  $\Delta$  as seen in Fig.  
21   11. A floor scrubbing element, as for example scrub  
22   pad 114a is carried by section 112a to project away  
23   from surface 112a', as seen in Fig. 11. Pad 114a may be  
24   attached by VELCRO layer or layers 114b and 114b' to a  
25   plate 154, which is in turn attached via projections

1       153 to 112. See openings 150. Pad 114a may for  
2       example be a pad produced by Glit/Microtron, a Katy  
3       Company, Item 20967, 20968 or 20969. A reduced  
4       thickness living (flexible) hinge may be provided at  
5       112c, as by plastic molding, to connect section 112a  
6       with extension 112a' which is connected to 112b at  
7       corner 112d.

8                  Attachment 120 includes a plate or plate  
9       section attached to base 112. See plate section 120b  
10      attached to or integral with 112b. Stiffener ribs 202  
11      may be provided to stiffen that corner attachment,  
12      fixing angle  $\Delta$ . Base 112 and plate section 120b may  
13      be of one-piece, plastic molded construction, whereby  
14      plate or plate section 120b is well adapted to support  
15      or connect to the mop head, and base 112 is well  
16      adapted to support or carry a scrubbing pad 114a, or  
17      scrubbing bristles, as referred to, force being  
18      transmitted from the handle to the bristles (during  
19      scrubbing) via the plate 120b and the base 112, of  
20      fixed relative angularity as referred to, stiffeners  
21      202 assisting in fixing that angularity.

22                  Plate or plate section 120b contains a  
23      through opening or hole 130 through which the handle  
24      end is received to establish connection of the handle  
25      125 to the mop head. See Figs. 9, 10, and 14. Hole

1      130 is located about mid-way between opposite ends  
2      120e and 120f of the rigid plate 120, as seen in Figs.  
3      9 and 10. The dimension between ends 120e and 120f is  
4      preferably between 1 inch and 15 inches.

5                Fig. 17a shows the handle tapered end portion  
6      125a, with threading 132, sized to project through hole  
7      130 and screw into an interiorly threaded recess 126a  
8      in the mop head 126. The flange or shoulder 133 on the  
9      handle clamps the plate 120 to the mop head.

10              Figs. 12 and 14 show bristle groups 164  
11      having ends 164a as an alternate scrubbing device.  
12      The bristle ends can be fused connected to 112 and  
13      bristles 164 and plate 112 may consist of  
14      polypropylene. Bristles can also be carried by  
15      extension 112a''.

16              In accordance with one important aspect of  
17      the invention, two holes of different sizes or  
18      diameters are associated with the plate section 120,  
19      (or otherwise designated as a form of tongue), to  
20      selectively and alternatively register with different  
21      size (or diameter) mop handles. A first hole may be  
22      the described hole 130 to receive a relatively larger  
23      size mop handle end 132; and a second hole such as is  
24      shown at 140, is alternatively usable with a second and  
25      smaller size mop handle end seen at 141 in Figs. 17 and  
26      18. Hole 140 is provided as a through hole in an

1      adapter in the form of a flap 142 foldable downwardly  
2      into position adjacent plate 120, as seen in Fig. 17.

3               Hole 140 is of smaller diameter than hole  
4      130, but it comes into coaxial registration with hole  
5      130, as seen in Fig. 18. To assure or assist this flap  
6      positioning, an annular boss 143 is provided on the  
7      flap, and it fits into hole 130 to center hole 140  
8      relative to hole 130. The mop handle 141 also has  
9      reduced diameter threading 144 to screw into the  
10     alternate mop head 145, as shown, and a clamp-up  
11     relationship is achieved as respects the mop handle,  
12     the plate 120 and the mop head. A living hinge 142a  
13     may be provided to foldably connect the flap 142 to  
14     plate section 120b. The handle clamps to the flap 142  
15     at 133a in Fig. 18. See also Figs. 15 and 16.

16               Fig. 11 shows apertures 150 in base 112 to  
17     receive projections 153 carried by a plate 154. Fig. 12  
18     shows another form of connection of a bristle plate 154  
19     to base 112, wherein projections 157 extend through  
20     apertures 170 in base 112.

21               Fig. 19 shows an adjustable claw 160  
22     connection of the mop handle 161 to the mop head 162.  
23     Claw finger or fingers 160a penetrate the mop head at  
24     its side 162a, and claw finger or fingers 160b grip the  
25     base 112 of the attachment 120, as shown. A rotor 164

1 on the handle 161 is rotatable to adjust claw gripping.  
2 Bristles 184 are fused to plate section 112.

3       Fig. 13 shows a form of a base 212, like 112, with  
4 apertures 213 to receive projections on a bristle  
5 carrying plate.

6       The devices of the invention will also enable  
7 normal mop wringing, as by use of a mop bucket wringer,  
8 for example of side press or down press type. Such  
9 device 100 may consist of molded plastic material to  
10 weigh between 1 and 32 ounces.

11       Further features and elements are listed in  
12 the attached claims, and/or shown in the drawings.

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